〔EISEI KAGAKU, 32, 267 (1986)〕

Studies on the Control Index of Activated Sludge. VII Relation between Bacteria Flora and Dimethyl Disulfide Formation in Activated Sludge.

BANICHI TOMITA, NORIKATSU HAMAMURA, AKIRA NAKAMURA, MASUO YAMADA, HIROMASA INOUE, YOUKI OSE*

Dimethyl disulfide (DMDS) formation by bacteria isolated from normal or abnormal activated sludge was examined. Bacteria with high DMDS-forming ability could not be isolated from normal activated sludge. However, when the activated sludge was abnormally conditioned at high biochemical oxygen demand (BOD) loading, bacteria capable of forming DMDS from methionine were isolated.

〔EISEI KAGAKU, 32, 308 (1986)〕

Testing and Evaluation of Chemical Toxicity on *Tubifex*.

YOSHITADA YOSHIOKA, YOUKI OSE*, TAKAHIKO SATO

The LC_{50} test method by use of *Tubifex* was developed for the evaluation of eco-toxicity of chemicals. The change of the observation period, the size of *Tubifex* or the test temperature affected little the LC_{50} value of 3,5-dichlorophenol. Acute toxicity of 20 chemicals was tested at 20°C for 48h by use of *Tubifex* of 30-50mm in length. The test results were compared with the other three biological test methods ; EC_{50} of activated sludge respiration inhibition test, LC_{50} of *Oryzias latipes* acute toxicity test and EC_{50} of *Tetrahymena pyriformis* proliferation inhibition test. A good correspondence was found in each two test methods compared, and the regression analysis showed that the sensitivity of the *Tubifex* test lied between those of activated sludge and *O. latipes* tests.

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Degradation of Disinfectants by *Pseudomonas aeruginosa* Isolated from Activated Sludge--Identification of Degradation Products.

YOSHIKAZU SAKAGAMI, HIROSHI YOKOYAMA, YOUKI OSE*

Disinfectants frequently used in hospitals are presumed to be degraded by bacteria after discharge into the environment. In the present investigation, the degradabilities of several disinfectants such as glutaraldehyde (GA), benzalkonium chloride (BC) and chlorhexidine digluconate (CG) were examined by using three strains of *Pseudomonas aeruginosa* isolated from activated sludge and acclimatized to disinfectants. It was found that GA was metabolized to glutaric acid, BC was metabolized to decabutyldimethylamine and toluene, and CG was converted to *p*-chloroaniline, *p*-chlorophenol, *p*-chloroacetoanilide, phenol, aniline, pyrocatechol and pyrogallol. Possible degradation pathways of CG are presented.